Klohn Crippen Berger

August 3, 2010

Yukon Zinc Corp.
#701 – 475 Howe Street
Vancouver, British Columbia
V6C 2B3

Pamela O'Hara
VP Environment, Health and Safety

Dear Mrs. O'Hara:

Wolverine Tailings Facility
Annual Tailings Facility Physical Inspection

1. INTRODUCTION

1.1 General

This letter report presents the findings from the annual inspection of the Wolverine Tailings Facility as required by Quartz Mining License QML-0006. The inspection was carried out on June 28, 2010 by Mr. Harvey McLeod of Klohn Crippen Berger Ltd. (KCB). This report includes a summary of the stability and status of inspected structures, and provides recommendations for remedial action where necessary.

The starter dam for the Wolverine tailings facility was constructed in 2009 and is scheduled for commissioning in August 2010. The main facility components that were constructed in 2009 include:

- A 20 m high homogeneous earthfill dam constructed with borrow material excavated from the impoundment area.
- Placement of a 40 mil LLDP geomembrane liner over the impoundment area. The liner is anchored into the dam crest and perimeter of the impoundment in a ditch backfilled with soil.
- Diversion Ditch A and Diversion Ditch B, which direct non-contact runoff water around the impoundment.

Additional construction works which were carried out (or will be completed) in 2010 include the following:

- Placement of the reclaim pump barge and access ramp.
- Installation of tailings delivery pipelines and water reclaim pipelines.
- Completion of the starter dam emergency spillway.

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- Completion of the seepage recovery pond dyke and water pump-back system.
- Installation of monitoring instrumentation.

The tailings impoundment has been accumulating water from runoff, mine discharge, and the sewage treatment plant. The estimated volume of water at the time of the site visit was approximately 100,000 m^3. A start-up volume of water of about 60,000 m^3 is recommended for operation of the pump barge and settling of tailings.

1.2 Dam Classification

The recent Canadian Dam Association Dam Safety Guidelines (CDA 2007) were adopted to confirm the classification of the tailings facility for seismic and flood protection criteria. The selected dam classification, based on the dam break analysis and assessment of consequences of failure is "High" to "Very High", and the criteria for Very High has been selected for design. The use of the Very High rating provides additional security for the long term performance of the tailings facility after closure.

The impoundment is designed to safely route the 1:10,000 year return period flood through spillways (Starter Spillway and Ultimate Spillway) located in the west flank of the dam. During operations, the tailings facility will also store the 1:200 year return-period flood event, without the release of water. The design earthquake is a 1:10,000 year return period, with a peak ground acceleration of 0.22 g. The minimum geotechnical factors of safety during operations are 1.5 for static stability and 1.1 for pseudo-static stability.

1.3 Documentation

The main documentation for the Wolverine Tailings Facility includes:

- Yukon Zinc Corp., Wolverine Project, Tailings Facility, *Operations, Maintenance and Surveillance* Manual, V2010-01, draft July 2010.
- Klohn Crippen Berger Ltd. (2010). *Wolverine Project – Starter Tailings Storage Facility – 2009 Civil Works Construction Summary Report.* Vancouver: Klohn Crippen Berger Ltd.
- Klohn Crippen Berger Ltd. (2009). *Wolverine Project - Tailings and Infrastructure Design and Construction Plan.* Vancouver: Klohn Crippen Berger Ltd.

- Yukon Water Board. (2007, October 4). Type A Water Use Licence QZ04-065. Whitehorse, YT, Canada.

2. SITE INSPECTION OBSERVATIONS

A walkover inspection of the facility was carried out during the June 28 site visit. No significant observations were made that would suggest any concerns with the stability of the facility or its ability to store tailings as per the design. Observations of various components of the facility were made and these are documented in the following sections for record purposes.

2.1 Dam

- The dam is in good condition and there are no signs of settlement, cracking or slope movement.
- Seepage was observed downstream of the dam near the right abutment and the location is shown in plan on the attached Figure 1. The seepage appeared to be coming from the low ridge (as opposed to through the dam). The flow rate was approximately 1 L/s.
- A moist area (as evidenced by a slight colour change) mid-way up the dam slope was observed. This area was noted in the As-Built Construction report and was due to placement of a moist fine soil layer. The layer does not influence the stability.
- The flow into the underdrains, at the top end of the impoundment, was estimated to be approximately 1.5 L/s. The flow exiting the underdrains, at the downstream toe of the dam, was estimated to be approximately 10 L/s.

2.2 Starter Dam Emergency Spillway

The emergency spillway was partially constructed at the time of the site visit and will be completed this summer (2010). The spillway would only be used during an extreme event (e.g. >200 year flood) when the impoundment is near full storage capacity. The spillway is located mainly within natural ground.

2.3 Impoundment Area and LLDPE Geomembrane Liner

- The liner was in good condition and no tears or ruptures were observed. Some rippling of the liner has occurred due to expansion/contraction in

hot weather and to original placement procedures. This is not considered to be a concern.

- The east slope has what appear to be localized settlement cracks and small "sloughs". These are likely due to the loose soil on the slope on which the liner has been installed. The minor cracks occurred over a length of approximately 15 m and are shown in plan on the attached Figure 1. The local sloughs, which may also be only variations in the slope during construction, are on the crest, about 300 mm from the top of the impoundment slope, and run parallel to the slope. As the water level and tailings level in the impoundment rises, this area will be stabilized, and as such is not a concern.

2.4 Liner Underdrains

The liner underdrains, which consist of a French drain with perforated pipes under the liner and solid pipes under the dam are performing as designed. The inflows into the underdrains at the upstream end of the impoundment consist of 0.5 L/s from the area between Ditch A and the underdrain inlet, plus 1 L/s coming from the northern portion of Ditch B, which slopes toward the underdrain inlet.

The flow out of the underdrains at the toe of the dam is approximately 10 L/s, indicating that the underdrains beneath the LLDPE liner are collecting approximately 8.5 L/s.

The purpose of the underdrains was to relieve uplift pressure on the liner during construction. As the impoundment becomes full, and the weight of water and tailings increases, the requirement for the underdrain diminishes and they will be decommissioned at a later stage of operations.

2.5 Seepage Recovery Pond and Dyke

The seepage recovery pond is a contingency structure which is installed to provide further security against the very low risk of impoundment seepage. The dam is formed by the mine access road and extreme flood flows are routed through a spillway culvert through the dam. During operations water collected in the seepage recovery pond will be monitored for quality and pumped back to the tailings impoundment if discharge requirements are not met. At the time of the site visit, the road and culvert were not at the final design level and these works will be completed. The seepage impoundment area consists of an irregular pond partially shaped by areas excavated for construction of the main dam and the natural topography.

The spillway culvert in the seepage pond will exit into a rockfill channel-stilling area and then flow towards Go Creek. The rockfill appeared to be in good condition and will function to control erosion during extreme events.

2.6 Diversion Ditch A and Diversion Ditch B

Diversion Ditch B had no flow. The soils in the base of the ditch and along the slope that the ditch traverses are relatively pervious and most slope runoff appears to infiltrate into the slope. This area should be observed after a heavy rain event and during spring freshet, to see whether the infiltrated water exits lower down the slope, above the liner and hence into the pond, or reports to the deeper groundwater under the liner. The ditch exits into a culvert, which extends down the slope towards the toe of the seepage dam, where it exits into a rockfill stilling basin. The stilling basin was in good condition.

The reported flow in Diversion Ditch A was approximately <1 L/s. The Ditch was in good condition. The ditch exits into a culvert and rockfill stilling basin. The stilling basin was in good condition.

2.7 Other Infrastructure

The tailings water reclaim pump barge, pumps and reclaim water lines have been installed and are readily accessible with a ramp down the upstream slope of the dam. A thick conveyor liner has been placed under the ramp to protect the geomembrane liner. The installation appears to have been carried out well and no areas of liner damage were observed.

The tailings delivery pipelines were in place to the northwest side of the impoundment and will be extended to the eastern side of the impoundment.

3. INSTRUMENTATION

Instrumentation for the dam, consisting of piezometers, survey pins and inclinometers, will be installed in September 2010. Groundwater monitoring wells, upstream and downstream of the tailings facility, continue to be monitored.

4. CONCLUSIONS AND RECOMMENDATIONS

The tailings facility is performing as expected and no signs of instability or other indicators of significant potential concern were observed.

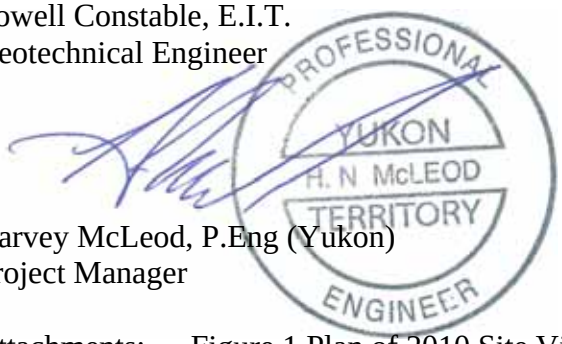
The main recommendations of this review include the following:

1. Complete the 2010 construction works and installation of monitoring instrumentation.
2. Continue to operate the facility as described in the Operation, Maintenance and Surveillance Manual (Manual will be finalized in August after approval from Yukon Energy, Mines and Resources).
3. Observe the performance of Ditch B during high rainfall events and spring freshet to check if water reports to the impoundment or remains subsurface. If water emerges above the liner and flows into the impoundment, an estimate of the water flow rate should be made.
4. The settlement cracks along the perimeter road on the east side of the impoundment should be observed monthly to see if there are any changes.
5. Continue monitoring the spring near the toe of the dam to confirm that it is not significant.

Yours truly,

KLOHN CRIPPEN BERGER LTD.

Lowell Constable, E.I.T.
Geotechnical Engineer



Harvey McLeod, P.Eng (Yukon)
Project Manager

Attachments: Figure 1 Plan of 2010 Site Visit Observations
Photo Record

STARTER ROAD
EL 1305.0, 5m WIDTH

AREA OF MINOR
SETTLEMENT CRACKS

DIVERSION DITCH B

LLDPE LINED IMPOUNDMENT

℄ DIVERSION DITCH A

TAILINGS
PIPELINE

PUMPHOUSE ENCLOSURE

SPILLWAY TO BE COMPLETED IN SUMMER,
2010

800 ø CSP

DAM UNDERDRAIN PIPES

TOP SOIL & WASTE
STOCKPILE

STILLING BASIN

TOP SOIL & WASTE
STOCKPILE

℄ STARTER SPILLWAY

CULVERT (TO BE
INSTALLED IN
SUMMER, 2010)

SPRING
~1 L/S

MAXIMUM
SEEPAGE POND

MW05-7

SEEPAGE RECOVERY
DAM TO BE COMPLETED
IN SUMMER 2010

442500E

6808500N

442000E

1340 1330 1320 1310 1300 1290 1360 1350 1330 1320 1310 1300 1295 1290 1305

LEGEND

LINER UNDERDRAIN (240 mm ø PERFORATED PIPE INSTALLED)

LINER UNDERDRAIN (NO PIPE INSTALLED)

SCALE: 0 100 m

DWG. NO. | REFERENCE DRAWINGS

NO	DESCRIPTION	BY	DATE
A	ISSUED FOR ANNUAL REPORT REVIEW	LC	JUL 30/10

ISSUE/REVISIONS

SECTION:	
SCALE:	DATE
DESIGN. BY LC	JUL 30/10
DRAWN BY: KL	JUL 30/10
CHECK. BY HM	JUL 30/10
APP. BY: HM	JUL 30/10

FILENAME:	PROJECT NUMBER	DRAWING NUMBER	REV.
----------	M09234A05	FIG 1	A

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WOLVERINE PROJECT

2010 SITE VISIT OBSERVATIONS

Time: 13:10:47
Date: 7/30/2010
Scale: 1:5,000
Drawing File: k:\M09234A05 - Wolverine 2009 Construction\400 Drawings\OMS 2010\FIG 1.dwg (klin)
Xrefs: by-others-May11-2010, CONT_2M_MINE_4Mgrid(Mod7mar25-2010)

Photo 1 Aerial view looking northeast

Photo 2 Aerial view looking northeast

Photo 3 Aerial views of impoundment

Photo 4 View from west side of impoundment, looking south

Photo 5 View from west side of impoundment, looking north

Photo 6 Reclaim pump barge

Photo 7 Tailings discharge pipeline (insulated pipes) (currently discharging mine water)

Photo 8 Inlet to the underdrains at the upstream end of the impoundment

Photo 9 Inlet to the underdrain – flow from upstream

Photo 10 Inlet to the underdrain – flow from the upstream portion of Ditch B

Photo 11 Minor settlement crack on perimeter road on the east side of the impoundment

Photo 12 Minor slope slough under liner on the east side of the impoundment

Photo 13 View of perimeter road on the east side of the impoundment

Photo 14 View of main dam and reclaim barge looking southwest

Photo 15 Reclaim barge

Photo 16 Reclaim barge

Photo 17 Ditch B – no flow

Photo 18 Ditch B – outlet to culvert

Photo 19 Main dam – view from left abutment

Photo 20 Impoundment – view from left abutment

Photo 21 Impoundment – view from left abutment

Photo 22 Access ramp to pump barge – note protective liner layer

Photo 23 Anchor block for pump barge

Photo 24 Moist area on left abutment of main dam

Photo 25 Underdrain pipes at toe of the dam – flow approximately 10 L/s

Photo 26 Seepage from low ridge near right abutment of dam - <1 L/s

Photo 27 View of downstream slope of dam – note darker layers

Photo 28 View of downstream slope of dam

Photo 29 Seepage pond area – note culverts in road to be removed during construction of dam in August 2010

Photo 30 Seepage dam spillway culvert outlet

Photo 31 Future seepage pond area

Photo 32 Outlet from Ditch B culvert

Photo 33 Future seepage pond area

Photo 34 View of insulated tailings pipeline

Photo 35 Emergency spillway inlet – note pipeline bridge across spillway

Photo 36 Emergency spillway outlet towards road area

Photo 37 View of Ditch A from upstream end of impoundment

Photo 38 View of Ditch B

Photo 39 View of impoundment from upstream (north) end

Photo 40 View of dam from left abutment

Photo 41 View of downstream slope of dam, from the left abutment

Photo 42 View of moist areas on downstream slope of dam – left abutment